

FEDERAL REMEDIATION TECHNOLOGIES ROUNDTABLE MEETING
Arlington, Virginia
June 14, 2000

TABLE OF CONTENTS

ACTION ITEMS

WELCOME/OPENING REMARKS

POLICY/PLANNING SESSION

UXO/Countermine Forum Update and Discussion	3
Feeding the Technology Pipeline: Moving Promising SBIR Field Candidates to Field Application	3
Feeding the Technology Pipeline: Coordinating the Development and Application of Diffusion Samplers	4

UPDATE ON ROUNDTABLE ONGOING PROJECTS

Action Plan for Accelerating the Maturation of Promising In-Situ DNAPL Treatment Technologies....	4
Cape Canaveral Demonstration, Expectations, Results, and Goals.....	5

COST AND PERFORMANCE DATA

Update	5
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OTHER GROUNDWATER TOPICS

Update on Fractured Rock Conference	5
Joint Presentation on a Groundwater Information Database	6

NEXT STEPS

FEDERAL REMEDIATION TECHNOLOGIES ROUNDTABLE MEETING
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ACTION ITEMS

The following action items were identified during this meeting of the Federal Remediation Technologies Roundtable:

- ▶ An *ad hoc* meeting will be convened to promote a better understanding of the SBIR program within the Roundtable member-agencies toward framing a strategy for using SBIR more effectively (see p. 3).
- ▶ An *ad hoc* meeting will be convened to examine the feasibility of a Roundtable-sponsored database of case studies on the use of diffusion samplers (see p. 4).
- ▶ An *ad hoc* meeting will be convened to plan research and other activities related to the DNAPL Action Plan (see p. 4).

DOE will chair the fall 2000 meeting of the Federal Remediation Technologies Roundtable. The technical topic for the meeting will be long-term monitoring and optimization. Related policy issues will be on the agenda as well. Special consideration will be given to the development of alternative concentration levels (ACLs) for groundwater and geostatistics.

WELCOME/OPENING REMARKS

Walt Kovalick, U.S. EPA/TIO, welcomed the attendees and opened the meeting of the Federal Remediation Technologies Roundtable (Roundtable) by reviewing the agenda for the day. He then introduced the chairman for the meeting, Col. Stacey Hirata, Director of Environmental Programs for the U.S. Army.

Chairman's Remarks

Col. Hirata noted that the Army consists of several organizations with missions that cover the environment. Since environmental responsibilities are distributed among these agencies, many often ask 'who does what?' and 'who speaks for the Army?' with regard to the environment.

Col. Hirata is the Director of Environmental Programs within the Army's Installation Management Program. Their annual budget is approximately \$1.2 to \$1.5 billion, about half of which goes to remediation activities. Installation Management is separate from the Base Realignment and Closure (BRAC) and Formerly Utilized Defense Site (FUDS) programs. As is the case with many federal efforts, Col. Hirata's program faces more requirements and responsibilities than can be met under its budget, and hence is always seeking ways to improve the way it does business. The Roundtable has helped the Army make such improvements.

Col. Hirata introduced Joseph Vallone, who works for the Army Environmental Center, an Army field agency. Mr. Vallone will serve as the Army's representative on the Roundtable in the future. He also recognized representatives of the Army Corps of Engineers, an executing agency within the Army structure, including the Corps' Center for Environmental Excellence. Col. Hirata noted that these and other programs within the Army structure can speak for the Army at times, and the Army tries to speak with one

Federal Remediation Technologies Roundtable Meeting, Arlington, Virginia, June 14, 2000

voice even though responsibilities for the environment are disbursed. He ended by noting that today marks the 225th anniversary of the creation of the U.S. Army, and introduced Mr. Vallone.

Mr. Vallone manages the Army's environmental technical requirements process, called environmental quality technology or EQT. As such, he serves as the Army's technology purchaser. Mr. Vallone reviewed the Army's restructured technology procurement process, which has shifted its focus to high-need requirements. In response to tighter budgets and increasing responsibilities, the Army has adopted a new 'corporate' approach that identifies high priority research and development needs as part of its overall defense planning guidance. This is a shift from the previous policy, which did not include an investment strategy and was not integrated across the Army's various programs with environmental missions. Visibility of R&D needs among top decision-makers in the Pentagon and the lack of a process for measuring success also were issues.

The new process, which was initiated in 1998, emphasizes developing and fostering partnerships with technology developers and other users, oversight by the newly-created Environmental Technology Technical Council (ETTC), a tiered management process, and buy-in from the user community. The EQT investment strategy is at the center of the new process. The key difference is that the investment strategy is plugged into the overall defense planning process, which allows the Army to build capacity for identifying and meeting future needs. Mr. Vallone also described the Army's Technology Team approach. These teams broker development deals that are sent up the chain for approval by Headquarters. The team examines the return on investment and technology transfer potential of the deal before the proposed package is sent to the ETTC for funding approval. Throughout the entire process, implementation planning runs concurrent with the development path.

Mr. Vallone concluded by pointing to the Army's experience in revising its lead abatement program under the new approach. The program is now more cost-effective and will achieve an estimated cost avoidance of \$106 million with payback on investment in two years. He noted that the estimates were generated and validated by accountants overseeing the process, rather than the environmental staff. The Army has had similar success with its hazardous air pollutants program. The new approach is now used by 20 separate Army programs, including unexploded ordnance (UXO), which is a hot-button topic for the Army.

In response to a question regarding opportunities for joint federal R&D activities, Mr. Vallone said joint demonstrations are underway and the Army is always interested in forming partnerships with agencies with similar needs, including technology transfer agreements, CRADA's, etc. The Army's requirements allow it to give funding and support to other agencies that undertake R&D work that will benefit the Army. Mr. Vallone added that he recognizes that the Army needs to do a better job of realizing a return on its investment in small businesses through the Small Business Innovative Research (SBIR) program.

Dr. Kovalick reviewed data on support to the Roundtable provided by each of the member-agencies and encouraged the members to continue that support and to think of new ways to take full advantage of opportunities to engage in joint efforts to promote the use of new technologies and help each other 'do business' more effectively.

POLICY/PLANNING SESSION

UXO/Countermine Forum Update and Discussion

Jan Kool, Hydrogeologic,(substituting for Jeff Marqusee, ESTCP/SERDP), gave an update and led a discussion on UXO-related activities. He described the recent UXO Forum, which was well-attended and

Federal Remediation Technologies Roundtable Meeting, Arlington, Virginia, June 14, 2000

very successful. (Forum proceedings are available from the Tennessee Valley Authority by calling 888-808-5303). The range rule is scheduled for release in August 2000. A memorandum on UXO management principles was issued jointly by DoD and EPA on March 7, 2000. A report to Congress on UXO also will be submitted next year.

The UXO management principles memo states that adequate site characterization is critical to proper cleanup of UXO and acknowledges that improvements are needed in the area. Current practices, especially the 'mag and flag' technique, register too many false alarms. The management principles memo includes a goal of reducing that number by a factor of ten. A new generation of digital geophysics tools are available to help achieve that goal, and advances in processing and sensor technologies are proceeding apace.

The report to Congress is due in March 2001. The report will include an estimate of the magnitude of the UXO problem faced by the Army and R&D plans related to UXO response. The coordinated UXO cleanup R&D program will be headed up by ESTCP and SERDP: the former will focus on new sensor and signal processing techniques; the latter on commercialization, technology transfer, and lessons learned. Technology objectives related to the reduction of false negatives include developing better tools for initial assessment of sites, site characterization, and cost-effective object discrimination. Protocols for site assessment are under development.

Mr. Kool closed by noting that ESTCP/SERDP's annual symposium (Partners in Environmental Technology) is scheduled for November 28-30, 2000. Details on the meeting can be found at www.estcp.org or www.serdp.org. Several technical sessions at the meeting will cover various aspects of UXO. In response to a question, Mr. Kool noted that the management principles issued by DoD and EPA cover the application of technical impracticability and institutional control criteria to UXO sites, as well as natural degradation and encapsulation.

Feeding the Technology Pipeline: Moving Promising SBIR Field Candidates to Field Application

Dan Powell, U.S. EPA/TIO, gave a presentation on opportunities the Roundtable may wish to pursue to feed the technology pipeline by advancing research to meet waste program needs using the SBIR program. Mr. Powell reviewed some statistics for the program and turned the floor over to Jim Gallup, EPA representative for the SBIR program, for further background.

The SBIR program provides grants to small businesses engaged in research and development that may benefit the federal government as it works to meet its environmental management requirements. Phase I grants from SBIR range from \$70,000 to \$100,000 for six months of support. About 10% of applicants receive these grants. Phase II and III grants, which focus on refinement and commercialization of technologies, are limited to Phase I recipients. Mr. Gallup reminded the Roundtable that SBIR operates within several federal agencies. He noted that SBIR is always looking for input to guide the solicitation process and that cross-agency funding of specific grants is allowed. Moreover, Phase II and III grants are not competitive, so if a member-agency has a project that it would like to see move through the latter phases, direct funding can be provided.

Representatives from the Army and Navy said those services could take better advantage of the SBIR program. For them, as well as for others, SBIR has been seen as 'doing its own thing' for a while, and has been an afterthought for the agencies with representation in the program. Skip Chamberlain, U.S. DOE, said SBIR should think about ways to promote itself to staff within those agencies who may not be aware of the benefits SBIR can offer. Mr. Powell asked whether it would be productive for the Roundtable to address the issue. Mr. Vallone said he felt the Army and others need a better understanding of the process

Federal Remediation Technologies Roundtable Meeting, Arlington, Virginia, June 14, 2000

before they can frame a strategy for using SBIR more effectively. He suggested that an *ad hoc* meeting be convened among the agencies to pursue the issue.

Feeding the Technology Pipeline: Coordinating the Development and Application of Diffusion Samplers

Rich Steimle, U.S. EPA/TIO, gave a presentation on documenting case studies of the application of groundwater diffusion samplers at federal facilities to help improve the state of the practice. Diffusion samplers offer many advantages over conventional groundwater sampling techniques, which use bailers and pumps that increase turbidity, create water disposal problems, and may not provide representative samples for specific areas of interest. Diffusion samplers use a permeable membrane to collect a sample, and thus eliminate the need for purging and disposal. They can be left in targeted areas for a period of time which enables collection of a more representative sample. Mr. Steimle noted that diffusion samplers can only be used to study VOC concentrations, which is the main drawback of the technique.

The Air Force Center for Environmental Excellence (AFCEE) has issued a guidance document on diffusion samplers that includes six case studies. The Navy has issued a similar study. ITRC is reviewing the AFCEE guidance document, which may improve the chances for regulatory acceptance of the technique. Mr. Steimle said that the use of diffusion samplers appears to be on the rise, based on sales by the two companies that sell them. He proposed that the Roundtable consider coordinating efforts among member-agencies to issue such case studies and collect them into a database. Several member-agencies agreed to meet before the next Roundtable meeting to discuss the proposal.

UPDATE ON ROUNDTABLE ONGOING PROJECTS

Action Plan for Accelerating the Maturation of Promising In-Situ DNAPL Treatment Technologies

Jim Cummings, U.S. EPA/TIO, gave an update on the status of the action plan for accelerating the maturation process for “DNAPL-killers.” He opened by showing videotaped segments regarding an oil spill and a table-top laboratory experiment that demonstrated the mobilization of DNAPL in a simulated fractured rock environment under raised heat conditions. Mr. Cummings distributed copies of the current action plan and noted that the search for source control technologies that decrease mass flux continues.

The current plan works within the infrastructure created by various policies as embodied in the technical impracticability waiver guidance, the monitored natural attenuation policy, and signed Records of Decision. The plan lists the types of sites where these technologies may be most effective, including wood treating sites, manufactured gas plants, dry cleaners, chlorinated solvent sites, large petroleum sites, and sites with fractured media. In all, the number of sites is estimated at 3,500.

Next steps under the plan include data collection on plume behavior, working with regulators toward increasing acceptance of the technologies, and developing realistic estimated time frames for pump-and-treat remedies using metrics that represent the true cost of long-term pump-and-treat. The implementation schedule for the plan is nearing completion. Mr. Cummings added that methods aside from thermal technologies for treating DNAPLs (such as oxidation) will be developed concurrently as work progresses on thermal technologies.

Cape Canaveral Demonstration, Expectations, Results, and Goals

Federal Remediation Technologies Roundtable Meeting, Arlington, Virginia, June 14, 2000

Skip Chamberlain gave an update on the side-by-side demonstration of three DNAPL cleanup technologies at Cape Canaveral, Florida. At present, a demonstration of six-phase soil heating is underway, which is drawing 30 pounds of product per day, rather than the hundreds of pounds expected. The problem may lie with the characterization of the site. A post-demonstration evaluation is underway. The steam injection demonstration will commence next month. The project is also focusing on technology transfer issues and seeking to engage other federal agencies in the process. Mr. Chamberlain noted that issues have arisen regarding the use of partitioning interwell tracer (PIT) tests at the site that may need to be resolved before monitoring and characterization work can proceed. However, this will have no impact on the demonstrations of thermal technologies.

Mr. Chamberlain noted that copies of the *In Situ* Chemical Oxidation Design Manual are available. The schedule for regular publication of the Manual has not been finalized.

COST AND PERFORMANCE DATA

Update

John Kingscott, U.S. EPA/TIO, announced that, in addition to adding 78 case studies since the last meeting, the web-based, searchable database of cost and performance case studies now is fully operational. The database contains information on 218 projects. Mr. Kingscott it is now time to start thinking about how the system can be improved and promoted to both Roundtable member-agencies and outside users. Johnnie Shockley, U.S. Army Corps of Engineers, suggested targeting engineering schools, students, and faculty, and noted that the Roundtable Web page receives a significant number of visits from users with .edu suffixes.

OTHER GROUNDWATER TOPICS

Update on Fractured Rock Conference

Rich Steimle discussed an upcoming workshop on identification and remediation of groundwater contaminants in fractured bedrock. The workshop will be held in November in Providence, Rhode Island. Its goal is to share field experiences to improve the efficacy of fractured rock projects. Mr. Steimle stressed that the event is a workshop rather than a conference: the audience will be selected based on what they can offer, and, in turn, need, related to fractured rock projects. In particular, the workshop is meant to bring together regulators and the regulated, and is expected to document the state-of-the-practice.

The November meeting is being held in anticipation of the larger groundwater conference scheduled for March 2001 in Toronto. That conference will cover flow, solute transport, and remediation. A slot will be available for each Roundtable member-agency at the November workshop. Mr. Chamberlain added that the workshop should be seen as an opportunity for follow-up planning aimed at getting the agencies to where they want to be for the next ten years or so, rather than a continuation of the current piecemeal approach.

Joint Presentation on a Groundwater Information Database

Dawn Kaback and Diane Roote, GWRTAC/CTC, demonstrated Groundwater Central, a Web site that will serve as a portal to a network of groundwater science and technology information organized by topic. Groundwater Central is not a database; rather, it serves to make such information more easily available to stakeholders by directing web navigation with subpage links. Groundwater Central will be maintained and

Federal Remediation Technologies Roundtable Meeting, Arlington, Virginia, June 14, 2000

operated by GWRTAC, with funding from DOE and others. The system should be fully operational by the end of FY 2000. Dr. Kovalick encouraged the member-agencies to support both GWRTAC and Groundwater Central in the future.

NEXT STEPS

The Roundtable members proposed and discussed technical and policy subjects for the next Roundtable meeting. The group agreed that long-term monitoring and optimization will be the technical topic. The Corps of Engineers has issued a guidance specification on the subject. Mr. Chamberlain asked that policy considerations be placed on the agenda, especially regarding the use of alternative concentration levels (ACLs) and geostatistics. DOE will chair the next meeting.

Jim Jenkins, Bregman and Co., raised a second possible policy topic. He noted that the Army's experience at the Massachusetts Military Reservation has raised ordnance constituents as a policy issue, and that the Army is spending more time proving that sites are safe rather than looking for problems.

The meeting adjourned.

Federal Remediation Technologies Roundtable Meeting, Arlington, Virginia, June 14, 2000

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FEDERAL REMEDIATION TECHNOLOGIES ROUNDTABLE
June 14, 2000**

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